REMARKS

The Applicants request reconsideration of the rejection.

Claims 26 and 27 remain pending.

On page 2 of the Office Action, under the heading "Information Disclosure Statement", the Examiner appears to have confused the requirements for submitting the certified copies of the priority documents with the requirements for filing Information Disclosure documents.

The Applicants request the Examiner to acknowledge receipt of all of the certified copies of the priority documents in prior application, U.S. Serial No. 09/035,827. Priority is claimed to Japanese Application No. 09-052769, filed March 7, 1997, and Japanese Patent Application No. 09-060488, filed March 14, 1997, as indicated in the Declaration.

In addition, the Applicants submitted an Information Disclosure Statement and Form PTO-1449 on March 29, 2004, concurrently with the application. However, the Examiner refused to consider the references because the Applicants have not submitted certified copies of the Foreign Patent Documents and publications. The Applicants submit that because the references were cited or submitted in the parent application and are thus available to the Examiner, it is not necessary to provide additional copies (37 CFR §1.98(d)(1). However, additional courtesy copies can be provided at the Examiner's request. The Applicants respectfully request that the Examiner include an initialed Form PTO-1449 with the next Patent Office communication. A copy of the Form PTO-1449 filed on March 29, 2004 is attached for the Examiner's convenience.

Claims 26-27 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Byram, U.S. Patent No. 4,492,923 (Byram) in view of Tomita et al., U.S. Patent No. 5,601,081 (Tomita). The Applicants traverse as follows.

Byram is cited as broadly disclosing a method for estimating a magnetic field source of a motion of an object, including steps "capable of" measuring a magnetic field component direction of a magnetic field generated by a body using a plurality of superconducting quantum interferences devices (SQUIDs), and determining a value proportional to a root of the magnetic field component in the z-axis direction. Byram, however, is not cited as disclosing any feature other than these broad known steps.

Thus, Tomita is cited as disclosing a method for estimating a magnetic field source, comprising the steps of measuring the magnetic field component in the z-axis direction of a biomagnetic field generated from a living body, displaying an isomagnetic field map, solving an inverse problem for estimating a position and a magnitude of a magnetic field source within the living body, and calculating magnetic fields at a plurality of positions where the biomagnetic fields are detected. However, the passages cited by the Examiner (col. 8, lines 45-56 (referring to Fig. 1), and col. 2, lines 1-46) do not teach or fairly suggest the claimed steps of (2) determining a value proportional to a root of $S(x,y,t) = \{\{\partial Bz(x,y,t)/\partial x\}^2 + \{\partial Bz(x,y,t)/\partial y\}^2\}$ from said magnetic field component ($Bz(x,y,t)$) in the z axis direction, and determining an isomagnetic field map obtained by connecting points at which said values proportional to said root are equal to each other; and (3) displaying the isomagnetic field map, as required by both claims 26 and 27. Rather, col. 8, lines 45-56 of Tomita teach a data analyzing unit 8 that is used to deduce current sources in a region to be diagnosed of an examinee M from field data stored in a data collecting

unit 5. The current sources are superimposed on sectional images previously obtained from a radiographic CT apparatus or MRI apparatus and displayed on a color monitor 10 or printed by a color printer 11. There is no disclosure of the determination of an isomagnetic field map, or of displaying an isomagnetic field map.

An isomagnetic field map is like a contour map for connecting points at which magnitudes of a magnetic field component measured at desired time points are equal to each other. Examples are shown in Figs. 14A-14C of the present application, including isomagnetic field maps at the moments of peaks of QRS waves obtained from a cardiac magnetic waveform. Further examples are shown in Figs. 24A-24C, 25A-25C, Figs. 26A-26C, and Figs. 29A-29B. Tomita does not show the determination or display of any such isomagnetic field map.

In fact, Tomita does not appear to consider isomagnetic field maps in the disclosed method and apparatus for deducing bioelectric current sources. Rather, in Tomita, a current dipole is estimated by estimating a current distribution with minimum norm and searching a lattice at which the current becomes maximum. Tomita measure minute magnetic fields formed by bioelectric current sources in a region under examination of an examinee, sets a plurality of lattice points in the region under examination, derives physical quantities of the current sources by solving a relational expression of unknown current sources at the lattice points and field data provided by magnetic sensors, with a condition added thereto to minimize the norm of a vector having the current source at each lattice point, moving the lattice points toward a lattice point having a large current value among the computed current sources, checking whether a minimum distance among the lattice points having been moved is below a predetermined value, and repeating the current

source computing step, lattice point moving step, and checking step for the lattice points having been removed, when the minimum distance exceeds the predetermined value, and regarding as a true current source the current source corresponding to a magnetic field occurring when the minimum distance is determined to be below the predetermined value at the checking step.

Thus, it is seen that Tomita does not determine an isomagnetic field map obtained by connecting points at which the value is proportional to the root of the equation set forth in claims 26-27 are equal to each other, or display an isomagnetic field map, as required by both claims 26 and 27. Further, Tomita does not solve an inverse problem for estimating a position and magnitude of the magnetic field source within the living body, using the number of peaks and position data of the peaks in the isomagnetic field map as initial values for solving the inverse problem, as also required by claims 26 and 27.

Additionally, Tomita does not disclose or fairly suggest that the position data and number of peaks are designated on an isomagnetic field map as the initial values for solving the inverse problem, as required by claim 26. Tomita also does not teach or fairly suggest to calculate magnetic fields at a plurality of positions where the biomagnetic fields are detected, calculate an evaluation function expressed by the difference between the plurality of calculated biomagnetic fields and the detected biomagnetic fields at the plurality of positions where the biomagnetic fields are detected, or determine analytically the minimum value of the

evaluation function by changing positional coordinates of the current dipole to solve the inverse problem, wherein the position data and the number of peaks are designated on the isomagnetic field map as the initial values for solving the inverse problem, all as required by claim 27.

Because Tomita does not disclose these many features for which it is applied in the combination rejection with Byram, it necessarily follows that the combination of Byram and Tomita fails to render obvious the inventions claimed in claims 26 and 27.

In view of the foregoing amendments and remarks, the Applicants request reconsideration of the rejection and allowance of the claims.

To the extent necessary, the Applicants petition for an extension of time under 37 CFR 1.136. Please charge any shortage in fees due in connection with the filing of this paper, including extension of time fees, or credit any overpayment of fees, to the deposit account of Mattingly, Stanger, Malur & Brundidge, P.C., Deposit Account No. 50-1417 (referencing attorney docket no. ASA-701-04).

Respectfully submitted,

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